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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,843	10/08/2004	Kevin Lin	6199400018	5842

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EXAMINER

ELAND, SHAWN

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,843

Applicant(s)

LIN, KEVIN

Examiner

Shawn Eland

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification Objections

The disclosure is objected to because of the following informalities:

Some element numbers appear to be labeled incorrectly. Compare:

“physical address 302” (see page 8, line 7) with “source media 302” (see page 9, lines 1 & 5).

“physical address 304” (see page 8, line 8) with “pick-up head 304” (see page 9, lines 1, 2, & 5).

“physical address 306” (see page 8, line 7) with “processor 306” (see page 9, lines 2, 3, & 15).

“physical address 308” (see page 8, line 8) with “SDRAM 308” (see page 9, lines 2 & 15).

“calculating module 3008” (see page 9, line 4) with “calculating module 3006” (see page 9, line 9).

Appropriate correction required.

Drawings Objections

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following reference characters: 302, 304, 306, & 308.

Reference character “302” has been used to designate both “Index 0” in figure 5 and “Source media” in figure 7.

Reference character "304" has been used to designate both "Index 3" in figure 5 and "pick-up head" in figure 7.

Reference character "306" has been used to designate "Index 2" in figure 5 and "Processor" in figure 7.

Reference character "308" has been used to designate "Index 1" in figure 5 and "SDRAM" in figure 7.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12 – 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

All the "means for" statements are directed to software. Claim 12 is claimed as an apparatus, but the statements are functional descriptive material that is not structurally or functionally interrelated to the apparatus. Therefore it is non-statutory.

Claims 13 – 16 are rejected because of their dependency to the rejected claim 12.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 5 – 16 & 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 5 & 20, the limitation "the optical disc" is recited at the end of each claim. There is insufficient antecedent basis for this limitation. For the purposes of applying art the examiner will understand the limitation to mean "an optical disk."

In regards to claim 6, the limitation "the physical address" is recited on line 6. There is insufficient antecedent basis for this limitation. For the purposes of applying art the examiner will understand the limitation to mean "a physical address."

Claims 7 – 11 are rejected because of their dependency to the rejected claim 6.

In regards to claim 12, the recited steps don't appear to support the preamble. Thus, claim 12 appears to be inaccurate or incomplete.

Claims 13 – 16 are rejected because of their dependency to the rejected claim 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chowdhary (US 6,675,278) in view of Ryan (US 5,748, 551).

In regards to claim 1, Chowdhary teaches generating a block index for a block of data (see element 3 in figures 1 – 5; see column 2, lines 36 – 40); mapping the block index to a physical address of a memory (see column 2, lines 41 – 45); storing the block of data into the memory at the physical address (see column 2, lines 41 – 45).

Chowdhary does not teach mapping to physical memory based on the block index and a number N, wherein N is bank number of the memory; and looping to the generating step, wherein the mapping step makes each one of the block indexes map in turns to one physical address located at different banks, and result in any logical adjacent block of data be stored physically at different banks of the memory.

Ryan teaches mapping to physical memory based on the block index and a number N, wherein N is bank number of the memory and looping to the generating step, wherein the mapping step makes each one of the block indexes map in turns to one

physical address located at different banks, and result in any logical adjacent block of data be stored physically at different banks of the memory (see column 3, lines 66 – 67 through column 4, lines 1 – 13). (It is inherent that Ryan's mapping also involves a number N as the invention needs to know how to divide the data into subarrays internally and yet appear as one contiguous memory externally. See also column 6, lines 15 – 19.) It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add Ryan's memory device to Chowdhary's invention as it would reduce useless wait cycles.

In regards to claim 17, Chowdhary teaches generating a plurality of block indexes for a plurality of blocks of data (see element 3 in figures 1 – 5; see column 2, lines 36 – 40); mapping the block indexes sequentially to a plurality of physical address of a memory (see column 2, lines 41 – 45); and storing the block of data into the memory at the physical address (see column 2, lines 41 – 45).

Chowdhary does not teach mapping to physical memory based on the block indexes and a number N, wherein N is bank number of the memory, wherein the mapping step makes each one of the block indexes map in turns to one physical address located at different banks, and result in any logical adjacent block of data be stored physically at different banks of the memory.

Ryan teaches mapping to physical memory based on the block indexes and a number N, wherein N is bank number of the memory, wherein the mapping step makes each one of the block indexes map in turns to one physical address located at different banks, and result in any logical adjacent block of data be stored physically at different

banks of the memory (see column 3, lines 66 – 67 through column 4, lines 1 – 13). (It is inherent that Ryan's mapping also involves a number N as the invention needs to know how to divide the data into subarrays internally and yet appear as one contiguous memory externally. See also column 6, lines 15 – 19.) It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add Ryan's memory device to Chowdhary's invention as it would reduce useless wait cycles..

In regards to claim 6, Chowdhary teaches retrieving a block of data from a source media (see column 3, lines 4 – 8); assigning a block index for the block of data (see element 3 in figures 1 – 5; see column 2, lines 41 – 45); storing the block of data in the memory at the physical address (see column 2, lines 41 – 45); and repeating form the retrieving step (this is inherent as the system is designed to handle multiple blocks),

Chowdhary does not teach dividing value of the block index by N for acquiring a quotient Q and a remainder R , wherein N is bank number of the memory; calculating the physical address based on Q and R ; and wherein the calculating step makes the block index interleaved mapping to the physical address located at different banks and any two logically successive blocks of data be stored physically at different banks of the memory.

Ryan teaches dividing value of the block index by N for acquiring a quotient Q and a remainder R , wherein N is bank number of the memory (see column 3, lines 66 – 67 through column 4, lines 1 – 13; Ryan's invention divides mapping the physical memory between N number of banks, leaving Q & R , in order to define the subarrays within the system.); calculating the physical address based on Q and R (this is inherent

to defining the subarrays; see column 6, lines 15 – 19); and wherein the calculating step makes the block index interleaved mapping to the physical address located at different banks and any two logically successive blocks of data be stored physically at different banks of the memory (see column 3, lines 66 – 67 through column 4, lines 1 – 13). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add Ryan's memory device to Chowdhary's invention as it would reduce wait cycles.

In regards to claim 12, Chowdhary teaches means for generating a block index for the block of data (see element 3 in figures 1 – 5; see column 2, lines 41 – 45); means for dividing value of the block index by N for acquiring a quotient Q and a remainder R, wherein N is bank number of the memory (see column 3, lines 66 – 67 through column 4, lines 1 – 13); and means for calculating the physical address based on Q and R (see column 6, lines 15 – 19).

Chowdhary does not teach wherein the calculating means makes the block index interleaved mapping to the physical address located at different banks and any two logically successive blocks of data be stored physically at different banks of the memory. Ryan, however, does (see column 3, lines 66 – 67 through column 4, lines 1 – 13).). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add Ryan's memory device to Chowdhary's invention as it would reduce wait cycles.

In regards to claims 2 – 3, 7 – 8, 13 – 14, & 18 – 19, Chowdhary does not teach wherein the memory supports pipelining access or is an SDRAM. Ryan, however, does

(see column 1, lines 37 – 39; see Abstract, lines 17 – 21). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add these elements to Chowdhary's invention in order to better optimize RAM access.

For claims 4 – 5, 9 – 10, 15 – 16, & 20 Chowdhary doesn't teach dividing the block index by N to obtain a quotient Q and a remainder R; and calculating the physical address based on Q and R, wherein the physical address= $Q \times \text{block_size} + R \times \text{bank_size}$ wherein bank_size equals the memory size divided by N, and block_size equals the size of which the system is in need to process one sector from the optical disc.

Ryan teaches dividing the block index by N to obtain a quotient Q and a remainder R (see column 3, lines 66 – 67 through column 4, lines 1 – 13); and calculating the physical address based on Q and R (this is inherent to defining the subarrays; see column 6, lines 15 – 19), wherein the physical address= $Q \times \text{block_size} + R \times \text{bank_size}$ (Dividing the memory into N equal-sized banks and writing to adjacent blocks in equal time intervals and block sizes as specified in this invention in column 3, lines 66 – 67 through column 4, lines 1 – 13 does just this.) wherein bank_size equals the memory size divided by N (This is inherent when memory is sum of all equally-sized memory banks), and block_size equals the size of which the system is in need to process one sector from the optical disc (see column 13, lines 61 – 64). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add Ryan's memory system to Chowdhary's method of managing memory as it would expand his system by allowing for reading and writing to optical drives.

For claim 11, Chowdhary teaches reading the block of data according to the block index (see column 2, lines 41 – 45).

Chowdhary does not teach reading the block of data according to the reference function; and recording the block of data to a destination media, whereby the reading step makes each one of the block of data read at different banks in turns and result in time saving and reduces pre-charge overloads by reading in one bank and pre-charge in another bank accessed just before.

Ryan teaches reading the block of data according to the reference function (see column 6, lines 15 – 19); and recording the block of data to a destination media (see column 13, lines 61 – 64), whereby the reading step makes each one of the block of data read at different banks in turns and result in time saving and reduces pre-charge overloads by reading in one bank and pre-charge in another bank accessed just before (see column 8, lines 2 – 5). It would have been obvious to a person having ordinary skill in the art at the time the invention was made add Ryan's memory device to Chowdhary's invention as it would reduce useless wait cycles.

Examiner Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn Eland whose telephone number is (571) 270-1029. The examiner can normally be reached on Monday - Thursday from 7:30am to 5:00pm. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough, can be reached on (571) 272-4199. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shawn Eland
10/18/2006



HYUNG SOUGH

SUPERVISORY PATENT EXAMINER